

Overview of North American GHG Markets Opportunities for CMM

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CURRENT GHG MARKETS – NORTH AMERICA

- Seven Different GHG Programs to Consider
 - United States (4)
 - ACR, VCS, CAR, CARB
 - Canada (3)
 - BC, Alberta, Quebec
- CMM Projects Eligibility Can be Limited by:
 - Mine Type
 - Project Type
 - Location
- Wide Variety of Carbon Prices
 - \$1 \$15/ tonne carbon dioxide equivalents (CO₂e)





CURRENT GHG MARKETS – UNITED STATES

Voluntary Programs

- American Carbon Registry (ACR)
 - Will accept projects located in the U.S. as well as internationally
 - ACR has its own methodologies for certain project types and accepts CDM methodologies
 - Current offset price: est. \$1 / tonne CO₂e
- Verified Carbon Standard (VCS)
 - International program with projects throughout the world
 - VCS has its own methodologies for certain project types and accepts CDM and CAR methodologies
 - VMR0001 Pre-drainage from Open Cast Mines
 - VMR0002 Methane Capture from Abandoned Coal Mines
 - Current offset price: \$1 / tonne CO₂e





CURRENT GHG MARKETS – UNITED STATES

- Voluntary Programs
 - Climate Action Reserve (CAR)
 - U.S. and certain international projects allowed
 - CAR has 3 methodologies specific to Mexico
 - Livestock Methane Capture, Landfill Methane Capture, & Forestry
 - Ozone Depleting Substances (ODS) International from Article 5 countries
 - Coal Mine Methane Protocol –Version 1.1
 - U.S. underground coal mines only
 - Current offset price: \$1 \$3 / tonne CO₂e



Coalbed Meth



CURRENT GHG MARKETS – UNITED STATES

- Compliance (Mandatory) Programs
 - California Air Resources Board (ARB) Program
 - Currently only accepting offset projects located in the U.S.
 - Livestock, ODS, Forestry
 - Only current offset protocol being considered is the Mine Methane Capture (MMC) Protocol which includes:
 - Underground Coal Mines (CAR Protocol)
 - Surface or Open Cast Coal Mines (revised VCS Protocol)
 - Abandoned Underground Coal Mines (revised VCS Protocol)
 - CMM projects registered in CAR or VCS by end of 2013 may be considered for "early action" in ARB program
 - May accept offset projects in Mexico and Canada
 - May accept international offset projects if ARB program is "linked" to foreign country's GHG C&T program
 - Current offset price: \$9/tonne CO₂e (early action: \$7/t CO₂e)



CURRENT GHG MARKETS – UNITED STATES

- Compliance (Mandatory) Programs
 - California Air Resources Board (ARB) Program
 - Board Voting to Adopt Mine Methane Capture Protocol in March 2014
 - One final 15-day public comment period immediate following vote
 - Issues identified by environment groups in California
 - Financial additionality of projects
 - Leakage from increased coal production
 - Impacts on eventual regulation of CMM emissions in U.S.
 - Best Available Control Technology (BACT)





CURRENT GHG MARKETS - CANADA

- Compliance (Mandatory) Programs
 - Alberta
 - Program based on a cap of carbon intensities for different industries
 - Uses new offset methodologies approved by Alberta government for certain project types (33 project types approved)
 - Only allows GHG offset projects located within Alberta
 - Currently 1 underground and 8 surface coal mines in BC
 - Current offset price: \$15 / tonne CO₂e
 - Quebec
 - Currently only ODS and Livestock projects are allowed
 - Projects must be located in Quebec
 - Program <u>linked</u> to California program
 - Currently no offset projects registered





CURRENT GHG MARKETS - CANADA

- Compliance (Mandatory) Programs
 - British Columbia Pacific Carbon Trust (PCT)
 - Program began in 2010 as a Crown Agency
 - BC Government is currently only buyer of offsets (~800,000 MT)
 - Uses new methodologies for certain project types and accepts CDM, VCS, and CAR methodologies
 - Only allows GHG offset projects located within BC
 - Currently 1 underground and 9 surface coal mines in BC
 - Program hoped to expand BC voluntary GHG market and maybe eventual cap and trade (2016)
 - Current offset price: ~\$12-15 / tonne CO₂e





CURRENT GHG MARKETS - CANADA

- Compliance (Mandatory) Programs
 - British Columbia Pacific Carbon Trust (PCT)
 - YESTERDAY'S HEADLINES!



